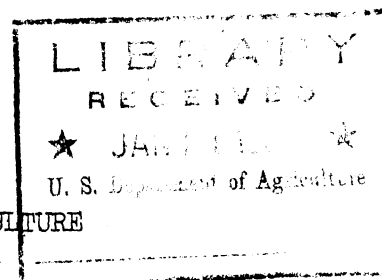


Historic, archived document

Do not assume content reflects current scientific knowledge, policies, or practices.

1.9
An 528



UNITED STATES DEPARTMENT OF AGRICULTURE

Washington, D. C.

THE EXTENSION ANIMAL HUSBANDMAN

Issued quarterly by the Bureau of Animal Industry
and Extension Service, Cooperating.

C. D. Lowe, Senior Extension Animal Husbandman,
K. F. Warner, Animal Husbandman in Meat Extension.

Serial No. 40 --

December 1935

Special Articles in this Issue:

Page

| | |
|---|----|
| Contribution of the Gold Medal Colt Club to Constructive Horse Breeding, by P. T. Brown..... | 2 |
| Wintering Ewes on the Range, by I. M. C. Anderson..... | 12 |
| 4-H Livestock Work Shows Progress in New York, by H. A. Willman | 16 |
| Conditions Favor Medium-Type Hogs, by E. T. Robbins.... | 22 |

Also:

| | |
|---|----|
| Animal Husbandmen Met at Chicago | 7 |
| Some Random Notes | 8 |
| Federally Inspected Slaughter | 17 |
| Livestock Receives More Humane Treatment | 18 |
| Cattle Feeding Situation | 18 |
| 1936-1937 Corn-Hog Program in Brief | 19 |
| Preserving Farm Dressed Meats in Freezer Storage..... | 20 |
| Cattle and Calf Slaughter Data | 20 |
| Arizona Conducts Steer Test Project | 21 |
| Changes in Personnel | 23 |
| The Feed Situation and Outlook | 24 |
| Recent Publications | 25 |

CONTRIBUTION OF THE GOLD MEDAL COLT
CLUB TO CONSTRUCTIVE HORSE BREEDING

By P. T. Brown, Associate Animal Husbandman,
Purdue Extension Service.

- - -

The Hoosier Gold Medal Colt Club was started in the fall of 1925, by the Purdue University Department of Agricultural Extension in cooperation with the Indiana Livestock Breeders' Association. Its objects were to teach and demonstrate better breeding, feeding, and management of draft horses. Its requirements were that the colts must be fed well enough to make certain minimum gains in weight during the 12 months following weaning. They were to be brought together in county groups and judged, the winners to receive medals from the Indiana Livestock Breeders' Association. (Refer to June, 1930, issue of this publication for more details. - Editor).

The club started with 96 members in 28 different counties feeding 137 colts. Since that time, however, the club has grown rapidly until it had 936 members in 45 counties feeding 1,273 colts during its tenth year, which has just been completed, and has 1,487 colts nominated for 1936. The following table gives a summary of the growth of the club for the 10 years it has been in operation:

Data Showing Growth of Gold Medal Colt Club

| Year | Number Members | Number Counties | Number colts | | | | | | No. shows held |
|------|-------------------|--------------------|--------------|--------|--------|--------|--------|-------|-------------------|
| | | | Belg. | Perch. | Clyde. | Fr.Dr. | Others | Total | |
| 1926 | 96 | 28 | 90 | 45 | 2 | - | - | 137 | 13 |
| 1927 | 181 | 31 | 148 | 74 | 8 | 1 | 7 | 238 | 25 |
| 1928 | 226 | 32 | 185 | 110 | 5 | 1 | 2 | 303 | 23 |
| 1929 | 308 | 40 | 279 | 120 | 12 | 1 | - | 412 | 36 |
| 1930 | 229 | 31 | 209 | 98 | 5 | - | - | 312 | 12 |
| 1931 | 221 | 29 | 212 | 81 | 3 | 7 | 2 | 305 | 19 |
| 1932 | 315 | 36 | 314 | 117 | 2 | 6 | 2 | 441 | 23 |
| 1933 | 439 | 41 | 438 | 122 | 2 | 14 | - | 576 | 25 |
| 1934 | 614 | 36 | 597 | 186 | 3 | 6 | - | 792 | 29 |
| 1935 | 936 | 45 | 996 | 269 | 8 | - | - | 1,273 | 35 |
| 1936 | - | 55 | - | - | - | - | - | 1,487 | - |

An immediate result of the Gold Medal Colt work was the establishing of several county colt shows where the members could

exhibit the yearlings they had fed. These shows have had a strong influence among our horsemen. Probably the most important benefit of these shows has been that they have given farmers and breeders an opportunity to compare the offspring of the different sires used in their counties and in the State. After a few years of Gold Medal Colt work, the better breeding sires in each county and in the State began to receive increased attention because of the performance of their colts in these shows.

To emphasize further the importance of good breeding stallions, the club, each year, has scored the sires of the colts on its roster, and has given special recognition to the high-scoring sires of each breed and to the highest-scoring sire of the year, regardless of breed. In this phase of the work, the club has had the cooperation of the Belgian, Clydesdale, and Percheron breed associations.

The following tabulation gives the high-scoring sires of each breed for the last ten years. The Clydesdale breed has had practically no representatives in the club for the last five years, and, therefore, no sire prize has been given since 1930. It is interesting, also, to point out that the highest-scoring sire, regardless of breed, has been a Belgian each of the ten years.

Winning Sires

| <u>Year</u> | <u>Belgian</u> | <u>Percheron</u> | <u>Clydesdale</u> |
|-------------|---|-------------------------------------|--|
| 1926 | Camile Harvey Kern, Springport | Janus Willan & Jacobs, Trafalgar | Langwater Footprint Otho Wyrick, Kempton |
| 1927 | Bijou's Paul Shirey Bros., Muncie | Jobis Clifford Cleaver, Cutler | Langwater Footprint Otho Wyrick, Kempton |
| 1928 | Camille Harvey Kern, Springport | Omer Harry Stamp, Roachdale | Trooper's Baron H. C. Hyne Estate, Stewartsville |
| 1929 | Camille Harvey Kern, Springport | Jobia Clifford Cleaver, Cutler | Langwater Footprint Otho Wyrick, Kempton |
| 1930 | West Pine Lochinvar Jesse Whitesel, Wabash | Jobia Clifford Cleaver, Cutler | Radio Painter Bros., Middletown |
| 1931 | Boer d' Bois Harry Stamp, Roachdale | Baryton Virgil E. Lafuse, Lynn | |
| 1932 | Jonas Roscoe L. Bowers, Springport | Baryton, Virgil E. Lafuse, Lynn | |

- | | | |
|------|---|-----------------------------------|
| 1933 | Paul de Camille James L. Scott, Greentown | Baryton Virgil E. Lafuse, Lynn |
| 1934 | Camille Harvey Kern, Springport | Baryton Virgil E. Lafuse, Lynn |
| 1935 | Farceur's Successor C. O. House, Arcadia | Baryton Virgil E. Lafuse, Lynn |

From this tabulation, it will be seen that Camille has been the high-scoring sire of the Belgian breed, and in fact, of all breeds for four years. His grandson, Paul de Camille, had similar honors one year. Among the Percherons, imported Baryton, Champion at Ohio and the Sesqui-Centennial in 1926, and at Illinois in 1927, has been the high-scoring sire five different years.

The junior and reserve grand champion Percheron stallion at the 1935 Indiana State Fair was a Gold Medal Colt Club production sired by Baryton. The junior and grand champion Belgian mare at the 1935 Indiana State Fair was also a Gold Medal Colt Club production and she was sired by Camille.

The story of this junior champion Percheron stallion and his breeder, Paul Ferris, had its beginning back in 1925, the year the Gold Medal Colt Club was started. Mr. Ferris nominated three pure-bred weanling Percheron fillies in the Club that first year. He has nominated practically all his foals every year since then. All of these three made their required gains and were exhibited at the Fayette County Fair where they qualified for gold medals. One of the three fillies was Gussie, a gray out of Milline II and sired by Carluj, a horse that Carnot sired the year he stood at the R. G. Leeds farm near Richmond. Two of these gold medal fillies were sold, but Gussie was kept for a brood mare.

In 1928, when a 3-year-old, Gussie dropped her first foal, a gray filly called May, sired by the Ferris herd horse, Besigue, a son of Millet. May was nominated in the Gold Medal Colt Club as a weanling in the fall of 1928. In 1933, she produced the stud foal, Baryton's Milton, which was also nominated in the club. Thus he represents the third generation of an unbroken line of Ferris breeding that has been in the Gold Medal Colt Club during the past ten years.

In the spring of 1934, Baryton's Milton was purchased by the J. C. Penney-Gwinn Farms of Noblesville. For his new owners, he won

a gold medal in the Gold Medal Colt Club shows at Noblesville and at the State Fair. In the open classes he won the Percheron stallion futurity not only at Indianapolis, but also at the "International." His 1935 winnings include the Percheron Championship at the Noblesville Spring Stallion Show, and the junior and reserve grand championship at the Indiana State Fair and at the "International." It is interesting to note that Baryton Milton's dam, May, his grand dam, Gussie, and his great grand dam, Milline II, each had a yearling in the Gold Medal Colt Club shows this year.

But the achievements of Paul Ferris are not limited to the production of a single winner. He has bred three colts that have won the Indiana Futurity in the last four years. All of them were sired by Baryton, and out of closely related mares bred on the Ferris farm.

Clifford Eller and his champion mare, Jeannine, furnish a parallel record of achievement among the Belgians. In October, 1927, he purchased his first and only Belgian mare at the Jas. L. Scott dispersion sale near Greentown. His selection was a chestnut yearling filly, Lady Camille, which cost him \$215. Her dam was a daughter of Camille and her grand dam was a daughter of Lourdeau. Each of these stallions has sired an "International" champion stallion. In the spring of 1930, Lady Camille dropped her first foal, a filly named Bonnie Camille. Mr. Eller nominated his foal in the Gold Medal Colt Club, and that fall at the State Fair, won first in the Mare and Colt class. In 1931, as a yearling, Bonnie Camille won her gold medal and stood second in the Belgian filly futurity at Indianapolis. The next year she stood second in the two-year-old class and was reserve junior champion at the State Fair, and later won fifth at both Waterloo and Chicago.

In 1933, Bonnie Camille dropped her first foal, the champion filly, Jeannine. This foal was sired by Camille which had been leased for service in Hamilton County the year before by an aggressive group of Belgian breeders. At the State Fair that fall, Bonnie Camille stood fifth in the three-year-old class and Jeannine stood third in the filly foal class. In 1934, as a yearling, Jeannine won her gold medal and stood third in the Belgian filly futurity. The same year her dam, Bonnie Camille, with a stud foal won fourth.

In 1935, Bonnie Camille dropped her third foal called Shirley Temple. It was by Farceur's Successor, the high-scoring sire of 1935, and by old Farceur. At the 1935 Indiana State Fair, Bonnie Camille was seventh, her foal, Shirley Temple, was second, while her two-year-old daughter, Jeannine, was first, junior and grand champion

Belgian mare. At the 1935 Walterloo National Belgian Show, Jean-nine was first, junior and reserve grand champion, Lady Camille won first in the produce of dam class and Bonnie Camille won fourth in the same class. Mr. Eller, like Mr. Ferris, has bred other winners besides the ones mentioned -- among them being Gaynelle de Hollain which was reserve junior champion at Indianapolis in 1932.

In analyzing the achievements of Paul Ferris and Clifford Eller, we find that they have followed the same general plan of improvement. Each started with a good mare. They bred the mares to the best horses available. They developed and exhibited their colts in the Gold Medal Colt Club, and retained the best for brood mares. In this way, they have each built up a line of brood mares whose immediate ancestry they know and whose breeding ability is dependable. The Ferris junior champion stallion represents the third generation of his own breeding, and the Eller champion is the second generation of Eller breeding. Both men have bred their mares to stallions whose breeding ability has been amply demonstrated through Gold Medal Colt Club shows. Paul Ferris does not own Baryton, but has leased him and used him on his purebred mares for about five or six years. Clifford Eller was one of a group in Hamilton County that took the initiative in hiring Camille for service in their neighborhood. They have been impressed with his record as a gold medal sire. It was the colts which Camille sired in Hamilton County that enabled him to win his fourth State trophy in 1934.

In deciding whether the Gold Medal Colt Club has contributed anything to constructive horse breeding, we should define the term, constructive breeding. I would say it is that system of breeding and mating which, followed for a period of years, will develop the herd to the level where it produces a maximum percentage of high-class animals with a maximum percentage of certainty.

The things that may help to attain this end are: (1) The use of sires known to sire a high percentage of good individuals; (2) the building up of a dependable line of breeding females; (3) culling out the undesirable individuals. Such a program requires much time to reach its goal. The Gold Medal Colt Club provides the machinery whereby constructive breeders can set their program in motion more easily and more intelligently. First of all, the club shows are a proving ground for the sires of our colts. Breeders soon put a fairly accurate evaluation on the breeding ability of those sires which are annually well represented in these shows. In the second place, the shows are the places where the future brood mares are exhibited and the best singled out for home use. This enables a man who is desirous of doing so to build up a line of good

brood mares. The shows and the experience gained by showing make the breeders more critical judges, and this is highly important in order to cull the herd intelligently.

To summarize, the Gold Medal Colt Club is an extension activity intended to encourage good breeding, feeding, and management of draft horses. Its setup is such as to put the breeding stallions of the State into very definite competition through the showing of their nominated yearlings. The things that emphasize this competition of sires are: (1) The scoring of the sires, and the awarding of trophies to the high-ranking stallions; (2) the holding of Get-of-Sire classes in the county shows as well as the State Fair. At the close of the first ten years of this work, it is possible to find several cases in which members have patronized the proved sires, built up dependable lines of brood mares and sold off the less desirable productions. It is hoped that as time goes on, the effectiveness of such practices will be so clearly demonstrated that an increasing number of cooperators will develop into constructive breeders.

-----oOo-----

ANIMAL HUSBANDMEN MET AT CHICAGO

The annual meeting of the American Society of Animal Production, held at Chicago November 29-30, 1935, was one of the most successful in the history of the organization. The program featured timely and important topics and the attendance was large and represented practically every State in the Union.

The extension section was attended by more than 50 persons and the program was reported by those present as being one of the most helpful on record. Officers elected by the extension section of the ensuing year were -- P.T. Brown of Indiana, chairman; T.A. Ewing of Missouri, vice-chairman; and James Lacey of Wisconsin, secretary.

The roster of membership in the "Society" published in the proceedings of the 1934 meeting showed that only about half of the animal husbandry extension specialists were members. This is not a record to be proud of. It can and should be improved.

The printed proceedings of the recent meeting will be ready for distribution early in 1936. It will be a valuable volume and should be in the hands of every member of the extension group. By sending in your membership fee of \$2.50 at once to Dr. J. L. Lush, Iowa State College, Ames, Iowa, secretary of the "Society," you will be assured of securing a copy of the proceedings and also be able to feel that you are doing your bit to support your only professional organization of national scope.

-----oOo-----

SOME RANDOM NOTES

This number completes the tenth year of issuance of this quarterly publication. Whatever service it has rendered has been due primarily to the splendid support given it by the State specialists and other contributors. Likewise its future is largely in their hands.

Animal husbandry extension work has expanded and at present occupies a more important place in the general extension program than it did ten years ago. Those who have carried on during this period may point with satisfaction and pride to the accomplishments in these arduous years. Now as we start another year's activity, what lies before us? This is the time for stock taking. This is the time for evaluating the worth of our tools and weapons, our plans and our methods, and above all our purposes.

We can probably rest assured that the strenuous times of pioneering in the adjustment field are largely behind, particularly as far as fundamentals are concerned. Also, we can hope that drought emergency duties may not soon recur.

It is true that much remains to be done in the field of developing better bases for land-use adjustments but this is associated with the long-time agricultural programs with which all extension workers long have been struggling. We can fit into such a program well. Livestock production has an important place in it. We all are conscious of the fact that new problems in animal husbandry have arisen from the adjustment effort. Among them may be mentioned the modifications in production practices needed to conform to the increased production of pasture and forage crops as compared to harvested feeds. Efficient utilization by livestock of greater proportions of such crops involves new concepts in feeding and management practices and probably in breeding. These must have attention if we are to keep up with the procession. And we need the cooperation of research workers to that end. We are confident that we shall have it.

We also need to further our cooperation with leaders in other subject-matter fields, not only in planning but also in conducting the field end of our jobs. Although we are the logical and best-qualified group by training and experience to lead projects in livestock production, we must not be too highly specialized in

our thinking nor in our activities. We must look at the problem from the standpoint of the producer and bring such help to him as he needs in coordinating all phases of his operations into a smooth-working whole which will provide a satisfactory income, a sound use of his land resources, and a contented farm life now and in the future. In this the farm management specialist, the crop and soil specialist, the agricultural engineer, the specialist in disease control, and even the horticultural and home economics specialist all have a part. It is only by such procedure that a balanced outcome may result.

There are some indications that there is a tendency on the part of livestock producers to let down on efficiency in production practices and on quality of product under the adjustment program. Recent Iowa data bear out the truth of this statement. If this is generally true, it is highly important that all possible effort be put forth to halt this trend. Careless production methods and low-quality products are contrary to the principles of an adjusted agriculture but likely were encouraged to some extent by the surplus accumulations of certain commodities a short time ago.

If we are to accept the belief of leading agricultural economists, we are now entering a period in which commercial agriculture will occupy a less important place in our national economy than it has for a considerable period in the past. These economists predict a further increase in self-sufficient and part-time farming which means more farmers in the aggregate. About half of those engaged in farming produced 90 percent of our total commercial production in 1929. This situation made it relatively easy for extension workers to influence the bulk of production even though many individual producers were not cooperating in the program. Now it is about to be different. More producers will have to be reached. This will call for some modification in methods of extension teaching. It will require the use of a maximum of means and agencies and a larger corps of volunteer leaders to produce results. It will embody more of the live-at-home doctrine and less production-for-market emphasis, if predictions come true. We should be alert to the impending situation and early recognize both the subject-matter and teaching problems involved and devote our best efforts to the solution of them as rapidly as possible.

The growing tendency to spend more and more time in the field in response to calls from county agents and other local sources is a problem with many specialists. They do not have sufficient time

in the office properly to organize projects, to prepare teaching materials, or to direct the broader phases of their assigned responsibilities. Perhaps much of this condition in recent years has been due to emergency duties but on the other hand some of it is the result of the natural inclination to want to do things ourselves, to the personal satisfaction we get out of direct contact with producers and also to the misunderstanding that "extension" duty means "field" duty exclusively. By and large the specialist who organizes his project with the proper balance between office time and field time to the end that the greatest good will come to the greatest number is the man who in the final analysis will have done the best job. Any stories regarding the manner in which specialists have reduced "field" time to the advantage of their projects will be welcome contributions to this publication.

During recent months the subject of "superior germ plasm" has had considerable publicity in agricultural circles.

Without attempting to discuss the proposed research program in this field and its expected results, it would seem that more of our extension projects in livestock production might well take on sire-testing phases. Livestock producers and breeders are greatly interested in the matter of progeny tests and other practical measurements of meat-animal performance.

Such an idea would be applicable to 4-H as well as to adult projects, especially where the animals are brought together for judging at the close of a project and where production records and breeding identifications are available. Special awards could be made to the sire which places the most offspring in the accepted type and quality class in each annual event or be deferred until sires had placed a required minimum number of offspring in such classes over a period of years.

The Hoosier Gold Medal Colt Club reported by Mr. Brown of Indiana on page 2 in this issue is an example of this idea applied to draft-horse production. Who has other examples to report?

Before many months, plans of work for the fiscal year 1936-37 will be due in Washington. Plans of work are required to be submitted and approved before funds can be released legally for the prosecution of work on any project which previously has been accepted by the Department. It is not the desire of the Department to have plans conform precisely to any patent formula, or to minimize

the individuality of the leader although any good plan should include certain essentials. The plans submitted by animal husbandmen have shown considerable improvement in recent years. However, many of them can be further improved. In many cases the plan submitted does not do justice to the extent and quality of work actually being done on the project it represents. In other instances the plan is stated in such general terms that it provides no clear picture of what is to be attempted or what methods will be used in getting results.

What are some of the points which a plan of work should include?

First, a statement of the problem. This should set forth the problem from the point of view of the people who confront it. Economic data from farm management studies, census statistics, shipping and marketing statistics and other sources of information should be drawn on for such statements.

Next is the diagnosis of the conditions and circumstances, including practices which are responsible for the existence of the problem. Then comes the solution which should include proposed remedies, the substitution of new for old practices, the source and uses of materials needed to bring about improvement, and the like.

Next in order is the teaching plan which is to be used. This should include a detailed outline of the means and agencies to be used to carry out the program, with approximate time schedules and use to be made of various agencies in influencing people to adopt the recommended practices. Such items as leaders, demonstrations, tours, meetings, literature, publicity of different types, and the part to be played by each in getting results should be listed.

Records and reports are needed to show spread of influence, together with methods whereby such information is to be used for the further advancement of the project.

Lastly, a word on outlook. The plan of work should show that consideration has been given to the needs and aims of the following year. This will help in analyzing results and will afford a basis for resetting goals. Carefully prepared plans of work will bring not only more worthwhile results but also much satisfaction in time saving and other economies on the part of all who carry on the project.

The last ten years have been epochal in agricultural extension work. The next ten promise a field of endeavor and opportunity equally important and intriguing. Our success is what we make it.

--C. D. Lowe

-----oOo-----

WINTERING EWES ON THE RANGE

By I.M.C. Anderson, Livestock Specialist,
Montana State College.

- - -

Sheepmen are always confronted with the problem of a suitable supplement for their winter range. Which supplement to purchase and how much to feed are pertinent questions. In addition to the high-protein supplements such as cottonseed and linseed cake, corn, small grains and commercially prepared products, put up in the form of cubes or pellets, are available.

Probably more sheepmen use cottonseed cake to supplement their range than any other one concentrate. Part of its popularity is due to the fact that it is easy to feed on the range. The nut-size chunks may be fed on the ground with very little loss. Corn is the most popular of the grains because the kernels are large enough to be picked up by the sheep when fed on reasonably hard ground, sod, or packed snow. The other small grains must be fed in troughs, on packed snow, ice, frozen ground, or heavy sod.

Sheepmen, who have had years of experience in wintering ewes, have their own opinions as to the best supplement to use. One may claim that one sack of cake is as good as two of corn. His neighbor may be just as enthusiastic about corn or some other supplement. Each concentrate will have its advocates.

Recent experiments at the U. S. Range Livestock Experiment Station at Miles City, Montana, and at the Montana Agricultural Experiment Station at Fort Ellis, Bozeman, throw some light on this subject.

The Miles City station compared the feeding value of cottonseed cake and corn as a supplemental feed for range ewes during three winter grazing periods.

Corn and cottonseed cake were each fed at the rate of one-quarter pound per head per day. Both supplements were fed in troughs during the experiment to avoid any loss which might occur by feeding on thawing ground or unpacked snow.

The range grazed by the sheep at the Miles City station is typical of the Northern Great Plains region.

The following table is taken from the report of the Miles City study.

Summary Comparison of Values of Cottonseed Cake and Corn with Respect to Body Weights, Lamb Production, Wool Production, and Pounds of Live Weaned Lamb Produced per Ewe.
(Compiled by Stanley Smith)

| Year | Supplement Fed | No. ewes starting experiment no. 1 | Ewes lost during winter feeding period | Average weight (pounds) | | Average gain or loss -lbs. | Average fleece weight per ewe (lbs.) | Percent of lambs dropped | Percent of lambs weaned | Ave. wt. of lambs weaned, lbs. | Pounds live weaned lamb produced per ewe |
|--|----------------|------------------------------------|--|-------------------------|-------|----------------------------|--------------------------------------|--------------------------|-------------------------|--------------------------------|--|
| | | | | Initial | Final | | | | | | |
| 1932 | Corn | 578 | 8 | 115.7 | 107.4 | -8.3 | 10.44 | 107.6 | 84.5 | 62.8 | 54.4 |
| | Cake | 578 | 8 | 114.9 | 109.7 | -5.2 | 10.86 | 105 | 81.3 | 62.6 | 50.9 |
| 1933 | Corn | 563 | 15 | 112.1 | 108.5 | -3.7 | 10.10 | 103.9 | 78.5 | 55.9 | 43.9 |
| | Cake | 563 | 13 | 112.7 | 111.3 | -1.4 | 9.91 | 108.3 | 82.2 | 55.9 | 46.0 |
| 1934 | Corn | 547 | 1 | 115.9 | 125.1 | +9.2 | 11.42 | 103.5 | 87.2 | 52.8 | 46.1 |
| | Cake | 546 | 4 | 116.2 | 127.1 | +10.9 | 11.57 | 103.5 | 89.6 | 51.6 | 46.2 |
| Annual ave. for all ewes fed corn | | | | | | | | | | | |
| | | 562.7 | 8 | 114.8 | 113.6 | -1.2 | 10.64 | 105.0 | 84.1 | 57.3 | 48.2 |
| Annual ave. for all ewes fed cottonseed cake | | | | | | | | | | | |
| | | 562.3 | 8.3 | 114.6 | 115.9 | +1.3 | 10.77 | 105.6 | 84.3 | 56.6 | 47.8 |

The above table summarizes the data on winter gains or losses, the yield of wool in the grease per ewe, the percentage of lambs dropped and weaned, the weaning weight per lamb and the pounds of live weaned lamb produced per ewe.

The ewes fed cottonseed cake averaged annually a gain of 1.3 pounds per head, and those fed corn, a loss of 1.2 pounds per head.

Each lot was herded separately during the first year, but it was practically impossible to keep the two lots on similar range feed and to have the two herders handle the sheep in a similar manner. The following two years the two lots were branded so that they could easily be sorted each morning to be fed the supplement. The remainder of the day they were grazed as one band.

The type of supplement apparently had very little effect on the number of lambs dropped or weaned and the weaning weights of the lambs were nearly the same each year.

This experiment strongly indicates that a pound of corn has nearly the same feeding value as a pound of cottonseed cake for winter feeding in the Northern Great Plains region.

Feeding Trials Conducted by Montana Experiment Station

The range used by the sheep kept at the Fort Ellis farm was largely a southern slope of the cedar-brake type. Blue bunch grass predominated with some grama and needle grass. There were several varieties of browse such as sage brush, rabbit brush, and mountain mahogany, also such weeds as soap weed and Russian thistle.

The ewes were divided into four uniform groups and branded accordingly. During the day they were herded in a single band. At feeding time they were sorted into their respective lots and fed as follows: Lot 1, no supplement; Lot 2, corn; Lot 3, cottonseed cake, and Lot 4, beet-pulp pellets. The pellets contained 65 percent dry beet pulp, 15 percent beet molasses and 20 percent cottonseed meal. After feeding the ewes were all turned on the range together. The average daily allowance of the supplement for the 60-day period was one-third pound per ewe per day. Local sheepmen who saw these ewes at the close of the experiment said that all four groups were in good condition.

Wintering Ewes on the Range

December 29, 1934, to February 26, 1935 - 60 days

Montana Experiment Station

(Compiled by D.W.Chittenden, W.F.Dickson, Frank Barnum)

| Lot no. ----- | 1 | 2 | 3 | 4 |
|---------------------------------------|-------|-------|-----------|---------|
| Supplement----- | None | Corn | C.S. Cake | Pellets |
| No. ewes at close----- | 226 | 233 | 229 | 233 |
| No. ewes died----- | 1 | 0 | 0 | 1 |
| No. ewes removed----- | 12 | 5 | 6 | 8 |
| Initial wt.----- (lbs.) | 129.8 | 129.6 | 129.9 | 128.7 |
| Final wt.----- " | 122.2 | 125.7 | 130.2 | 125.7 |
| Ave. gain or loss (60 days)----- " | -7.6 | -3.9 | - .3 | -3.0 |
| Total feed per ewe | 1* | 19 | 19 | 19 |
| Ave. daily feed | - | .32 | .32 | .32 |

*A total of 1 lb. of cake per head was fed during four days of severe weather.

This experiment shows a correlation between the protein content and the feeding value of the concentrate, as shown by the following table. Note the greater loss in live weight as the protein content of the supplement decreased.

| Lot | Supplement | Protein | Gain or Loss |
|-----|-------------------|---------|--------------|
| | | Percent | Pounds |
| 3 | Cottonseed cake | 43.0 | -0.3 |
| 4 | Beet-pulp pellets | 15.5 | -3.0 |
| 2 | Corn | 9.0 | -3.9 |
| 1 | No supplement | ---- | -7.6 |

There was no significant difference in the amount of wool or lambs produced by the ewes in the various lots in any of the experiments.

There was but little difference in the average gain or loss with the various supplements and all the lots came through the winter feeding period in thrifty condition.

The question might be asked, why feed a supplement in view of the fact that the ewes fed no supplement lost only 7.6 pounds. Ewes that are in high condition in the fall may lose 7 pounds during the winter and still produce a good fleece of wool and a good lamb the following season, whereas, the loss of 7 pounds per head with thin ewes would probably cause serious death losses, or would so weaken the ewes that they would be unable to mother their lambs. If there is plenty of range available it would be uneconomical to add to the cost of wintering by feeding a supplement. However, a supply of some concentrate is necessary on most ranges as insurance in case of a severe storm. Sheep that are accustomed to eating a supplement can be carried through a storm on concentrates alone, while it may be difficult to induce all the sheep to eat a concentrate during an emergency if they have not acquired a taste for it.

In reviewing these experiments it should be noted that the high-protein supplements gave the best results with the type of range grazed by the Fort Ellis ewes; while corn, a low-protein feed, gave nearly as good results as cottonseed cake when used as a supplement with the range grazed by the Miles City ewes.

These experiments seem to indicate that the first consideration in choosing a supplement is the comparative cost of the various concentrates available; second, the percent of protein they contain; third, the type of forage on the range; and fourth, the convenience and facilities for feeding.

4-H LIVESTOCK WORK SHOWS PROGRESS IN NEW YORK

By H. A. Willman, Junior Livestock Specialist,
New York State College of Agriculture.

Livestock club work during 1935 was one of the leading 4-H club projects. Probably no phase of club work has won as much favorable comment from the public as that of recent 4-H club livestock raising. In national competition the New York 4-H sheep, dairy, swine, and baby-beef club members continuously have held a championship place. Projects properly carried on with meat animals seem to be proving profitable to the interested and ambitious type of farm boy and girl.

While dairying assumes a place of most importance in the State of New York, our meat-animal club work is made an important part of the 4-H club program. The future development of our flocks and herds rests largely with our farm boys and girls and it is important that they have an understanding of the newer problems and of the changing demands of the consumer. Club work helps to teach many of these principles and tends to foster a greater love for livestock of superior type and high production.

The combined membership in the three meat-animal projects now totals about 900 members which represents about one-third as many enrollments as we have in dairy club work. Dairy club enrollments jumped from 865 members in 1927 to 2,561 members in 1934. During this same period meat-animal enrollments increased by over 50 percent. Meat-animal projects are now gaining more rapidly in popularity and the quality of work which has been done with sheep, swine, and beef cattle has made these projects especially demonstrational. The sectional and national achievements of New York 4-H livestock members indicate only in a small way the success of this phase of work.

Several sheep and baby-beef champions at the Eastern States Exposition, three International Live Stock Exposition Junior Feeding Contest champion pens of lambs in five years of showing, and a grand champion and a reserve champion on 4-H club barrows in as many years, include the more important New York honors at large shows.

A fat-lamb show and sale featuring pens and groups of lambs fed and exhibited by 4-H boys and girls is held annually at Buffalo, N. Y., for New York and nearby States. New York consigned

371 head of lambs in 1933, an even 500 head in 1934, and will sell approximately 900 head of lambs at the 1935 show. The lamb-feeding project which terminates with this show provides an object lesson in parasite control, the value of better rams, feeding, grading, and marketing under grade. The entire shipping, sorting and grading, and marketing are made as nearly like the regular open class market procedure as possible with the exception that the lambs are sold by public auction. At this show both championships on pens and groups went to New York in 1933 but honors were divided with Michigan in 1934. Through this project boys and girls are showing many of our sheep men what can be done with parasite-infested lambs when they are drenched and properly handled and fed.

Outside of all the other good accomplished by meat-animal work, one of the best things about it is that it greatly improves the quality of our New York livestock. It is the most effective meat-animal purebred-sire campaign that we are conducting, though under another name. The bulk of the 4-H lambs which were fed by club members this year were sired by 4-H owned, registered purebred rams.

More interest than usual is being manifested in horses in New York. At least three New York counties will organize 4-H colt clubs during the coming year.

-----oOo-----

FEDERALLY INSPECTED SLAUGHTER

The total slaughter of cattle under Federal inspection in the 11 months' period since January 1, 1935, totaling 8,783,092 head, was 4 percent smaller than in the same months a year ago (excluding drought relief cattle), but 12.5 percent larger than the 5-year average for that period. Calf slaughter during the same period was 7.8 percent smaller than the commercial slaughter in the corresponding months of last year, but 13.8 percent above the average of the past 5 years.

The inspected slaughter of hogs for the first 11 months of 1935, totaling 23,182,772 head was 41.6 percent smaller than in the corresponding period of 1934. The inspected slaughter of sheep and lambs in the 7 months' period, May to November, 1935, was only 88,000 smaller than in 1931 when the slaughter was unusually large.

---From Vol. 3, No. 50, Market Reviews
and Statistical Summaries, B. A. E.

-----oOo-----

LIVESTOCK RECEIVES MORE HUMANE TREATMENT

More humane treatment of livestock through improved shipping methods, control of animal diseases and parasites, and better methods of handling was reported by Dr. John R. Mohler, Chief of the Bureau of Animal Industry, U. S. Department of Agriculture, in a talk at the fifty-ninth annual convention of the American Humane Association at Washington, D. C., on October 2, 1935.

Unloading of in-transit livestock from railroad cars for feed, water and rest every 28 hours, a legal requirement, has been responsible for great improvement in the condition of animals arriving at markets, Doctor Mohler pointed out. He also stated that charges of violating this so-called 28-hour law in recent years have seldom exceeded 150 a year, whereas in 1921 they numbered 2,165.

The Bureau has conducted supplementary educational work on points not covered by the shipping law. For example, exposure of livestock shipments to severe winter weather has been lessened by getting shippers to line the lower parts of stock cars with tar paper. Some railroads have been induced to install spraying devices for keeping animals, particularly hogs, cool in the summer. Proper care when animals arrive at the markets is supervised by Bureau inspectors stationed at the stockyards.

Farmers also are cautioned not to ship hogs and sheep in the same cars or trucks. Inspectors are constantly on the watch for protruding nails in shipping pens, chutes, cars, and trucks, for missing cleats that permit animals to fall or slip and for other things which may cause injury.

The more valuable the animal, Doctor Mohler said, the more completely the owner generally provides for its welfare. In view of this fact he appealed to his listeners to support programs for the improvement of animal types and quality. "By developing a greater incentive for considerate treatment of animals," he concluded, "you may achieve results not attainable by punitive means."

-----oOo-----

CATTLE FEEDING SITUATION

Shipments of stocker and feeder cattle from stockyards markets into the Corn Belt States in November were over 50 percent larger than the small shipments of November, 1934, but were smaller than in any other November since 1919 at least. The total of such shipments for the 5 months, July to November, was nearly 10 percent larger this year than last, and larger than in 1933, but was below any other year since 1919. Reports from the western States show that there will be a large increase in cattle feeding in those States this year. -- From Vol. 3, No. 50, Market Reviews and Statistical Summaries, B.A.E.

-----oOo-----

1936-1937 CORN-HOG PROGRAM IN BRIEF

Duration of the Contract.---Two years, from December 1, 1935, to November 30, 1937.

Bases.---Establishment by appraisal by community committees. Review, to assure uniformity, by county allotment committees. Both appraisal and review to be in accordance with standards prescribed by Secretary.

Corn Adjustment in 1936.---From 10 to 30 percent of corn base, with exact percentage at option of producer. Planting of not less than 25 percent of base acreage required.

Hog Adjustment in 1936.---To receive maximum payment, producer shall raise for market not less than 50 percent and not more than 100 percent of the market hog base.

Corn Adjustment in 1937.---Rate to be announced by November 30, 1936. Planting of more than 25 percent of the corn base or adjustment below 75 percent of the base not to be required.

Hog Adjustment in 1937.---To secure maximum hog payment, producer will not be asked to raise more than 60 percent or less than 75 percent of his assigned market base.

Corn Payments.---In 1936, two installments, about August 1 and about December 31, at rate of 35 cents per bushel, times the appraised yield, times the adjusted corn acreage. The 1937 rate per bushel to be not less than 30 cents; announcement of rate by November 30, 1936.

Hog Payments.---In one installment as soon as possible after final compliance check at close of each year. The 1936 rate will be \$1.25 per head for each hog in the market base. The 1937 rate will be not less than the 1936 rate.

Local Administrative Expenses.---Pro rata share to be deducted from corn and hog payments.

Division of Corn Payments.---Tenant and landlord share according to respective interests in assigned corn base and as the corn crops under the lease are divided on each separately owned tract. As an alternative method, subject to approval of allotment committee, tenant and landlord may divide corn payments according to the number of adjusted corn acres on each separately owned tract.

Division of Hog Payments.---Tenant and stock-share landlord divide payments as they divide pig crop under lease.

Use of Adjusted Acres.---Planting of soil-improving or erosion-preventing crops required on the adjusted corn acres. Such plantings must be in addition to the normal area devoted to these purposes.

Termination of Contract.---Contract to be in full force through November 30, 1937, unless the Secretary:

- (1) By announcement not later than November 30, 1936, terminates all corn-hog adjustment contracts with respect to 1937, or
- (2) Approves an application made by the contract signer not later than April 1, 1937, for termination of his original contract, or
- (3) Terminates the contract because of noncompliance.

-----oOo-----

PRESERVING FARM-DRESSED MEATS IN FREEZER STORAGE

The above was the title of a paper delivered by K. F. Warner of the U. S. Bureau of Animal Industry before the extension section of the American Society of Animal Production at Chicago on November 29, 1935.

The rapid increase in the utilization of freezer storage by farmers to preserve home-grown food products has developed a demand for additional technical information on the subject. The purpose of Mr. Warner's paper was to summarize what is known about freezer storage and to suggest phases on which more investigation, both scientific and practical, is needed.

A copy of the paper as delivered may be obtained by addressing the Bureau of Animal Industry, U. S. Department of Agriculture, Washington, D. C.

-----oOo-----

CATTLE AND CALF SLAUGHTER DATA

Slaughter of cattle and calves under Federal inspection during the first nine months of 1935 was notable for the large numbers of cows and heifers and of calves in the total. The number of cows and heifers slaughtered was the largest and that of steers was the smallest for the period in the record covering 17 years. The proportion of cows and heifers in the total cattle slaughter (52.5 percent) was much the largest on record and compares with an average proportion of 44.2 percent in the preceding 10 years. The number of calves slaughtered was the second largest on record, exceeded only by the commercial slaughter in 1934, and the proportion of calves to total cattle and calves was the largest on record.

---From 1936 Agricultural Outlook

-----oOo-----

ARIZONA CONDUCTS STEER TEST PROJECT

The Arizona Agricultural Experiment Station recently completed the first year's work in the testing of steers under a new plan. The work was conducted under the supervision of E.L. Scott and E. B. Stanley. The general purpose of the undertaking was to study the relationship of type and conformation to efficiency in the feed lot and the amount and quality of the end-product.

The cattle used were obtained from 12 different Arizona cattle producers, each herd supplying 12 head of feeder steer calves which were delivered about December 1, 1934. The entire lot of steers was conditioned together on alfalfa-barley pasture and later on a light ration of alfalfa hay, hegari silage, and cottonseed meal until February 21, 1935, at which time the best 10 head in each entry were selected by the breeder for the competition which was to follow. All entries were judged and graded at this time.

All lots were put on an economy-of-gain feeding test for a period of 120 days which began on March 6. The same feeds in identical proportions were fed to all lots. The average daily ration per steer for all lots was: Hegari silage 19.66 pounds, alfalfa hay 6.91 pounds, ground barley 4.68 pounds, and cottonseed meal 2.24 pounds. The average daily gain for the 120-day feeding period was 2.49 pounds per head.

A field day was held at the close of the feeding period when all records were available for observation and study. The cattle were all sold to the same packing company which extended every facility needed to furnish complete killing and grading data, so that, on the whole, full information was available on each steer in the test from beginning to end.

The experimenters report that nothing undertaken at the experiment station has ever aroused the interest and enthusiasm of the cattle producers of the State as has this project. Its results should be far reaching from the standpoint of cattle improvement.

The September 15, 1935, issue of the American Hereford Journal, published at Kansas City, Mo., carries a more detailed account of the project including all essential data.

-----000-----

CONDITIONS FAVOR MEDIUM-TYPE HOGS

By E. T. Robbins, Livestock Extension Specialist,
University of Illinois

- - -

The big-type hogs which have been so popular with breeders in recent years must attain heavy weights before they can be fattened. Frequently the heavy weights sell below the top of the market and always the heavy-weight hogs produce a large amount of lard. In recent years there often has been too much lard. These conditions favor medium-type hogs, which fatten at lighter weights, produce less lard, and more nearly provide the moderate sized cuts which consumers require.

The corn-hog adjustment program also encourages the production of medium-type hogs. This program means that more land is used for pasture. Medium-type hogs have deeper middles and seem to handle pasture to better advantage than do slim-bodied, hard-keeping, rangy hogs.

The University of Illinois tests also emphasize medium type. These tests were begun more than ten years ago. They have been very thoroughly conducted. The medium-type hogs have gained as rapidly as any others and have produced a maximum proportion of desirable carcasses and cuts. These tests indicate that the ideal market hog would have the quality and plumpness of the medium type, the length of the rangy type, and the early maturity of the chuffy type. Medium type most nearly fills the bill.

Stockyards prices are higher for medium-type hogs in general than for any other type. They are particularly higher for medium-type hogs than for rangy hogs. Farmers realize this and complain that they can not get the popular show-ring rangy pigs fat enough to top the market at popular weights of 200 to 250 pounds.

The long face, rainbow back, slim body, light hams, and long legs of the rangy hogs do not suit farmers' ideas and farmers' ideas are based largely upon market prices. No one can explain why a hog should have long legs. They are no more useful to hogs than they would be to a steer, or a sheep, or a draft horse.

Recently an Iroquois County, Illinois, farmer shipped 40 spring pigs to market. These averaged slightly over 200 pounds and were as fat as he could get them. All were fed together. Two of

the pigs were from a high-priced rangy sow which he had bought. The other 38 sold at nearly the top of the market. His returns listed two "dogs" at a price which was \$2.00 per hundredweight less than the others.

In commenting upon this experience the farmer stated that incidents such as his are making farmers disgusted with the fashionable rangy show-ring type of hogs. It is suggested that the determination of farmers to produce medium-type hogs is based upon market demands and upon their own successful experience with hogs which have sufficient middle and thriftiness to grow fast and to get fat at popular market weights. It is thought that those breeders who cater to this definite demand for medium-type hogs will do the industry great good.

Breeders complain about a falling off in the numbers of purebred hogs and in the farm demand for boars. If they continue to produce a show-ring type which is not useful to farmers it is likely that this condition will increase in extent. There is no reasonable excuse for having a type of hogs just for the show ring and another type for utility. Successful farmers must have useful hogs and they appear to be determined to have them whether they have pedigrees or not. They must have a type of hogs which will make money upon the farm and in the feedlot.

The old argument that farmers' herds include too many chuffy hogs and that they need more stretch is out of date. Farmers complain that their herds include too many rangy hogs now. That is why they have so many hogs which are sorted out and sold below the best of their hogs on the market. There seems to be no reason why one useful, medium-type of hogs could not be thoroughly established for both breeders and farmers alike. That is what the industry needs. Like produces like. A persistent adherence to medium-type sows and medium-type boars surely can establish a useful type of hogs for each breed and for each part of the country.

-----oOo-----

CHANGES IN PERSONNEL

Jones Purcell was appointed swine extension specialist in Georgia, effective September 1, 1935.

L. A. Henke, a member of the local experiment station and resident teaching staff, was assigned part-time extension duties in the Hawaiian extension service on July 1, 1935.

Carrol J. Goodell, previously of the resident teaching staff of the Mississippi State College, has been given extension duties in the same State, as assistant to Paul F. Newell, extension animal husbandman.

E. S. Matteson, former county agricultural agent in Monroe County, Mo., was appointed assistant extension animal husbandman in the same State, effective October 15, 1935.

Frank Pico is the extension animal husbandman in the agricultural extension service recently set up in Puerto Rico.

-----oOo-----

THE FEED SITUATION AND OUTLOOK

The total 1935 production of corn, oats, barley, and grain sorghums was 90,843,000 tons (Nov. 1 estimate) as compared with 50,781,000 tons harvested in 1934, and 100,636,000 tons, the 5-year (1928-32) average. Supplies of commercial feeds in 1935-36 will probably be somewhat more plentiful than in 1934-35, particularly the high-protein supplements. Taken all together, the 1935-36 supply of feed grains, including the carry-over of old crop grain, probable quantities of wheat and rye that may be fed, and the prospective supplies of by-product feeds, total approximately 106,000,000 tons as compared with 120,000,000, the average for the period 1928-29 to 1932-33. Allowing for an average carry-over into the next season, and for commercial use of feed grains, the 1935-36 supply of these items for feed purposes would give each grain-consuming animal unit, including poultry, about the same quantity of feed as on the average in the years 1928-29 to 1932-33.

Hay supplies, after making adjustments for the carry-overs at the beginning and end of the season, provide nearly 2 percent more tonnage per hay-consuming animal unit than the average of the years 1920-29. Compared with the last 5 years, hay supplies per animal unit seem high.

---From "Feed Prospects" issued by
Bureau of Agricultural Economics.

-----oOo-----

RECENT PUBLICATIONS

(Only U.S.D.A. publications are available from the Department at Washington. In most instances others can be obtained from the institution or agency issuing them).

Federal

"The Agricultural Outlook for 1936" by Federal and State workers - U.S. Department of Agriculture, Washington, D.C.

"A Practical Laboratory Method of Making Thin Cross Sections of Fibers" by J. I. Hardy - Bureau of Animal Industry, U.S.D.A. Circular 378. Nov. 1935. 11 pages. 16 illus.

"The Outlook for Rural Youth" by O. E. Baker, Bureau of Agricultural Economics, U.S.D.A. Extension Service Circular 223 - a 36-page mimeograph with 18 graphs and charts. Sept. 1935.

"The Purpose of Reports and Methods of Reporting" by H. W. Gilbertson, Extension Service, U.S.D.A. Circular 136. 15-page mimeograph. Aug. 1935.

"The Margin Between Farm Prices and Retail Prices of Ten Foods" by Frederick V. Waugh, Bureau of Agricultural Economics, U.S.D.A. 27-page mimeograph. Mar. 1935.

"Suggestions for Use in Conducting Educational Work on Hay" by E. O. Pollock, Extension Service and Bureau of Agricultural Economics, U.S.D.A. 23-page mimeograph. Oct. 1935.

"Statistical Results of Extension Work, 1934" by M. C. Wilson, Extension Service, U.S.D.A. 52-page mimeograph. July 1935.

"Classification, Grades and Uses of Wool" by Mary Brandon Potts, Bureau of Animal Industry, U.S.D.A. 6-page mimeograph. June 1935.

"Livestock, Meats and Wool, Market Statistics and Related Data, 1934" - Bureau of Agricultural Economics, U.S.D.A. 121-page mimeograph. Sept. 1935.

"Equine Encephalomyelitis" by L. T. Giltner and M.S. Shahan - Bureau of Animal Industry, U.S.D.A. 5-page mimeograph, with illus.

State

"Use of Forage Crops for Growing and Fattening Swine" by Edgar Martin - Arkansas Experiment Station Bulletin 321. 32 pages. June 1935.

"Pork Production in California" by E.H. Hughes and L.W. Feldmiller - California Extension Service Circular 15. 48 pages. Rev. June 1935.

"Creep Feeding Calves" by Osland and Morton - Colorado Experiment Station Press Bulletin 87. 8 pages. 1935.

"Home Preservation of Meat" by Marion Evans Dakin and W.B. Young - Connecticut Extension Service Bulletin No. 217. 7 pages. Mar. 1935.

"Beef Cattle Improvement in Florida" by Bradford Knapp, Jr., and A.L. Shealy - Florida Experiment Station Bulletin No. 281. 22 pages. 16 illus. June 1935.

"Value of Present-Day Swine Types...In Meeting Changed Consumer Demand" by Sleeter Bull, et al. - Illinois Experiment Station Bulletin 415. 295 pages. 10 illus.

"Brucellosis in Swine" by Robert Graham and Viola M. Michael - Illinois Extension Service Circular 435. 12 pages. 5 illus. May 1935.

"Pasture Improvement in Indiana" by K.E. Beeson and M. O. Pence - Indiana Extension Service Bulletin No. 205. 27 pages. 13 illus. Apr. 1935.

"The Evolution of the Sirloin" by C.S. Plumb - Indiana Experiment Station Circular No. 209. 14 pages. Apr. 1935.

"Feeding Soybeans" prepared by members of the Experiment Station and Iowa State College - Iowa Extension Service Circular No. 215. 24 pages. 5 illus. Sept. 1935.

"New Information about Livestock and Poultry" by Bray, Snell, Upp and Lush - Louisiana Experiment Station Bulletin No. 262. 35 pages. May 1935.

"A Six Years' Study of Crossbreeding Swine" by L.M. Winters et al. - Minnesota Experiment Station Bulletin 320. 18 pages. 9 illus. June 1935.

"Planning the Feeding of Farm Animals" by C. F. Clark - Mississippi Experiment Station Bulletin 304. 61 pages.

"Good Pastures Improve the Pig Crop" by A.G. Hogan and S.R. Johnson - Missouri Experiment Station Circular 187. 4 pages. 2 illus. June 1935.

"Temporary Silos" by G. E. Martin - Missouri Extension Service Circular 327. 8 pages. 2 illus. July 1935.

"How Missouri Hogs are Marketed" by F.L. Thomsen and Earl B. Smith - Missouri Experiment Station Bulletin 352. 18 pages. 12 figures. Aug. 1935.

"The Economics of Range Sheep Production in Montana" by M.H. Sanderson and Louis Vinke - Montana Experiment Station Bulletin No. 302. 55 pages. 7 figures. June 1935.

"Early and Late Lamb Production" by Alexander and Weber - Nebraska Experiment Station Circular 324. 8 pages.

"Wheat Straw as a Roughage for Fattening Cattle" by R.R. Thalman - Nebraska Experiment Station Circular 152. 5 pages. 1935.

"Pasture Feeding Vs. Dry Lot Feeding for Half-Fat and Feeder Steers" by Thalman and Gramlich - Nebraska Experiment Station Circular 138. 10 pages.

"Feeding Pigs on Forage" by W. L. Robison - Ohio Experiment Station Bulletin 552. 57 pages. 7 illus. Aug. 1935.

"Trench Silos and How to Make Them" by W.H. McPheters - Oklahoma Extension Service Circular No. 320. 11 pages. 7 illus. 1935.

"Winter Cover Crops for Pasture and Soil Conservation" by agricultural specialists - Tennessee Extension Service Publication 188. 8 pages. 3 illus. Aug. 1935.

"Home Tanning of Leather" by M.K. Thornton - Texas Extension Service Bulletin 86. 16 pages. 9 illus. 1935.

-----oOo-----